

## Claims:

1. A process for preparing enantiomer-enriched  $\alpha$ -hydroxycarboxylic acids or enantiomer-enriched  $\alpha$ -hydroxycarboxylic amides starting from a cyanide  
5 donor, an aldehyde or ketone in the presence of an oxynitrilase and a nitrilase or a nitrile hydratase.
2. A process for preparing enantiomer-enriched  $\alpha$ -hydroxycarboxylic acids starting from a cyanide donor,  
10 an aldehyde or ketone in the presence of an oxynitrilase and a nitrilase.
3. A process for preparing enantiomer-enriched  $\alpha$ -hydroxycarboxylic amides starting from a cyanide donor, an aldehyde or ketone in the presence of an oxynitrilase and a nitrile hydratase.
- 15 4. Process according to one or more of Claims 1 to 3, characterised in that  
the oxynitrilase of an organism or of the constituents of a plant selected from the group consisting of  
Sorghum bicolor, Hevea brasiliensis, Mannihot  
20 esculenta and almond kernels is employed.
5. Process according to one or more of Claims 1 and/or 2, characterised in that  
the nitrilase of an organism selected from the group consisting of Rhodococcus strains or of Alcaligenes  
25 faecalis is employed.
6. Process according to one or more of Claims 1 and/or 3, characterised in that  
the nitrile hydratase of an organism selected from the group consisting of Rhodococcus spec., Rhodococcus  
30 rhodochrous and Rhodococcus erythropolis is employed.
7. Process according to one or more of the preceding claims,

characterised in that  
the reaction is implemented in an aqueous medium at a  
pH value of 6.0-9.0.

8. Process according to one or more of the preceding  
5 claims,  
characterised in that  
the reaction is implemented within a temperature  
interval of 20-40 °C.
9. An enzymatic reaction system exhibiting an  
10 oxynitrilase, a nitrilase or a nitrile hydratase,  
water, a cyanide donor and an aldehyde or a ketone.
10. A whole-cell catalyst exhibiting a cloned gene for an  
oxynitrilase and a nitrilase or a nitrile hydratase.
11. Whole-cell catalyst according to Claim 9,  
15 characterised in that  
in the case where a nitrile hydratase is present said  
whole-cell catalyst likewise exhibits a cloned gene  
for an amidase.